Chapter NR 210

SEWAGE TREATMENT WORKS

Note: Chapter NR 210 as it existed on October 31, 1986 was repealed and a new chapter NR 210 was created effective November 1, 1986. Corrections made under s. 13.93 (2m) (b) 7., Stats., Register, March, 1997, No. 495.

NR 210.01 Purpose. The purpose of this chapter is to establish effluent limitations, performance requirements and monitoring provisions to be used in permits for discharges from publicly owned treatment works and privately owned domestic sewage treatment works under ss. 283.13 (4) and (5) and 283.55 (1), Stats.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.02 Applicability. This chapter is applicable to all publicly owned treatment works and all privately owned domestic sewage treatment works which discharge to surface waters.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.03 Definitions. The definitions of terms and meanings of abbreviations used in this chapter are set forth in s. 283.62, Stats., chs. NR 205 and 218 and as follows.

(1) "7−day average" means the arithmetic mean of pollutant parameter values for samples collected in a period of 7 consecutive days.

(2) "30−day average" means the arithmetic mean of pollutant parameter values for samples collected in a period of 30 consecutive days.

(3) "CBOD$_5$" means the 5−day carbonaceous biochemical oxygen demand.

(4) "Disinfection" means the operation of an ultraviolet lamp unit, or the addition of chemical disinfectants with adequate mixing and detention times, to provide pathogen reductions.

(5) "Effluent concentrations consistently achievable through proper operation and maintenance" means:

(a) For a given pollutant parameter, the 95th percentile value for the 30−day average effluent quality achieved by a treatment works in a period of at least 2 years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and

(b) A 7−day average value equal to 1.5 times the value derived under par. (a).

(6) "Facilities eligible for treatment equivalent to secondary treatment" means treatment works which meet all of the following:

(a) The BOD$_5$ and SS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of the effluent quality set forth in s. NR 210.05 (1) (a) and (b);

(b) Trickling filters, aerated lagoons or waste stabilization ponds are used as the principal processes; and

(c) The treatment works provide significant biological treatment of municipal wastewater.

(7) "NH_3−N" means ammonia nitrogen.

(8) "Percent removal" means a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the 30−day average values of the raw wastewater influent pollutant concentrations to the facility and the 30−day average values of the effluent pollutant concentrations for a given time period.

(9) "Privately owned domestic sewage treatment works" means those facilities which treat domestic wastewater and are owned and operated by nonmunicipal entities or enterprises such as mobile home parks, restaurants, hotels, motels, country clubs, resorts, etc., which are permitted under ch. 283, Stats.

(9m) "Sewage treatment facilities" has the meaning specified under s. NR 110.03 (29).

Note: Section NR 110.03 (29) reads: "Sewage treatment facilities" means sewerage systems defined in sub. (30) exclusive of interceptor sewers and sewage collection systems.

(10) "Significant biological treatment" means the use of an aerobic or anaerobic biological treatment process in a treatment works to consistently achieve a 30−day average of at least 65% removal of BOD$_5$.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86; **CR 09−123: cr. (9m) Register July 2010 No. 655, eff. 8−1−10.**

NR 210.04 Monitoring requirements. (1) Discharges subject to the provisions of this chapter shall at a minimum monitor the effluent for BOD$_5$, SS, and pH.

(2) Influent wastewater strengths and volumes shall be characterized at treatment facilities subject to the monitoring provisions of sub. (1) by monitoring for flow, BOD$_5$ and SS.

(3) Monitoring requirements may be adjusted on a case−by−case basis depending on wastewater characteristics and their potential to degrade water quality.

(4) The department shall require the use of 24−hour flow proportional samplers for monitoring influent and effluent wastewater quality except where the department determines through the permit issuance process that other sample types may adequately characterize the influent or effluent quality. In evaluating permit monitoring requirements, the department may consider:

(a) Treatment facility design flow and actual flow;

(b) Type of treatment processes used at the facility;

(c) Previous performance records as reported on the discharge monitoring report;

(d) Type of wastewater treated: domestic, municipal or industrial wastewater; and

(e) Final effluent limitations.

(5) The methods of sampling shall be as described in s. NR 218.04 (10) to (17).

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.05 Effluent limitations. Publicly owned treatment works and privately owned domestic sewage treatment works shall meet as a minimum the effluent limits specified in this section.

(1) Where the receiving water is classified as fish and aquatic life in s. NR 102.04 (3):

(a) The following effluent limits for BOD$_5$ apply:

1. The 30−day average may not exceed 30 mg/l.
2. The 7−day average may not exceed 45 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(b) The following effluent limits for SS apply:

1. The 30−day average may not exceed 30 mg/l.

2. The 7−day average may not exceed 45 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(c) The effluent pH shall be within the range of 6.0 to 9.0.

(d) Upon request by the permittee, pursuant to s. NR 210.07 (4), the department may substitute the parameter $CBOD_5$ for the parameter BOD_5 and the levels of effluent quality specified in par. (a). The following effluent quality levels of $CBOD_5$ shall be applicable:

1. The 30−day average may not exceed 25 mg/l.

2. The 7−day average may not exceed 40 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(e) More stringent effluent limitations than those specified in pars. (a) to (d) may be imposed for any pollutant where necessary to meet water quality standards for water receiving the treated discharge.

(2) Where the receiving water is classified as intermediate aquatic life as defined in s. NR 104.02 (3) (a):

(a) The following effluent limits for BOD_5 apply:

1. The 30−day average may not exceed 15 mg/l.

2. The daily maximum may not exceed 30 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(b) The following effluent limits for SS apply:

1. The 30−day average may not exceed 20 mg/l.

2. The daily maximum may not exceed 30 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(d) The effluent pH shall be within the range of 6.0 to 9.0.

(e) The daily minimum effluent dissolved oxygen level shall be 4.0mg/l.

(f) Upon request by the permittee, pursuant to s. NR 210.07 (4),the department may substitute the parameter $CBOD_5$ for the parameter BOD_5 and the levels of effluent quality specified in par. (a). The following effluent quality levels of $CBOD_5$ shall be applicable:

1. The 30−day average may not exceed 12 mg/l.

2. The daily maximum may not exceed 25 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(g) More stringent effluent limitations than those specified in pars. (a) to (f) may be imposed for any pollutant where necessary to meet water quality standards for water receiving the treated discharge.

(3) Where the receiving water is classified as marginal surface water as defined in s. NR 104.02 (3) (b):

(a) The following effluent limits for BOD_5 apply:

1. The 30−day average may not exceed 20 mg/l.

2. The 7−day average may not exceed 30 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(b) The following effluent limits for SS apply:

1. The 30−day average may not exceed 20 mg/l.

2. The 7−day average may not exceed 30 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(c) The effluent pH shall be within the range of 6.0 to 9.0.

(d) The daily minimum effluent dissolved oxygen level shall be 4.0mg/l.

(e) Upon request by the permittee, pursuant to s. NR 210.07 (4),the department may substitute the parameter $CBOD_5$ for the parameter BOD_5 and the levels of effluent quality specified in par. (a). The following effluent quality levels of $CBOD_5$will be applicable:

1. The 30−day average may not exceed 16 mg/l.

2. The 7−day average may not exceed 25 mg/l.

3. The 30−day average percent removal may not be less than 85%.

(f) More stringent effluent limitations than those specified in pars. (a) to (e) may be imposed for any pollutant where necessary to meet water quality standards for water receiving the treated discharge.

(4) Effluent limitations may be imposed for pollutants other than those specified in subs. (1) to (3) where necessary to meet water quality standards for waters receiving the treated discharge.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86; CR 03−050: r. (2) (c) Register February 2004 No. 578, eff. 3−1−04; correction in (1) (intro.) made under s. 13.93 (2m) (b) 7., Stats., Register February 2004 No. 578.

NR 210.06 Disinfection requirements. (1) Disinfection shall be required of dischargers subject to the provisions of this chapter when the department determines, based on the information identified in sub. (3), the discharge of wastewater poses a risk to human and animal health. Disinfection shall be required:

(a) From May 1 through September 30 annually to protect recreational uses, or

(b) Year−round to protect public drinking water supplies.

(c) The period during which disinfection under pars. (a) and (b) is required may be adjusted in a WPDES permit where necessary to protect human and animal health.

(2) Where disinfection is required, the following effluent limitations shall apply:

(a) The geometric mean of the fecal coliform bacteria for effluent samples collected in a period of 30 consecutive days may not exceed 400mg/100 ml.

(b) When chlorine is used for disinfection, the daily maximum total residual chlorine concentration of the discharge may not exceed 0.1mg/l. In addition, when chlorine is used for disinfection, a dechlorination process shall be in operation for the period during which disinfection is required.

Note: The 0.1 mg/l total residual chlorine limit reflects best analytical technique for domestic wastewater effluents. An effluent limitation for total residual chlorine based on best available technology for dechlorination of effluents was determined to be below detection levels of currently available analytical techniques.

(3) A permittee subject to this chapter shall at the time of application for a WPDES permit provide information identified in this subsection which the department shall use in the determination of the need for effluent disinfection. The following information shall be used in identifying risks to human and animal health:

(a) Proximity of the wastewater outfall to swimming beaches and other waters which have a high level of human contact recreational activities.

(b) Proximity of the wastewater outfall to public drinking water supply intakes. At a minimum, whenever a drinking water intake is within a radius of 5 miles of a wastewater outfall in a lake or impoundment or within 20 miles downstream of a wastewater outfall on a flowing surface water, disinfection shall be provided.

(c) Proximity of the wastewater outfall to wetlands which support populations of waterfowl subject to disease outbreaks, which may be caused by the discharge of wastewater which has not been disinfected.

(d) Quality of the wastewater being discharged.

(e) Dilution and mixing characteristics of the wastewater with the receiving water.

(f) Bacterial indicator organism levels or sanitary survey results from sampling conducted in the vicinity of the wastewater outfall and near the sites used for recreational purposes.

(g) The classification of the receiving water and downstream waters as determined in s. NR 104.02 (1).

(h) The detention time of the wastewater treatment system. Except in extenuating circumstances, the discharge of wastewater to surface water from a treatment system with a detention time of 180 days or longer does not pose a risk to human and animal health.

(i) Other factors that are necessary to determine if there is a risk posed to human and animal health by the discharge of wastewater that has not been disinfected.

(4) Permittees shall be given a reasonable compliance schedule in their WPDES permit if they are unable to meet the effluent limits contained in s. NR 210.06 (2) at the time of permit issuance. However, in no case may the date for compliance with sub. (2) extend beyond 3 years from the date of permit issuance, unless circumstances beyond the permittee's control, such as an environmental impact statement, require additional time for compliance. In such circumstances the date for compliance with sub. (2) may not extend beyond 5 years from the date of permit issuance.

(5) Final determinations made under subs. (1) and (4) shall be made at the time of permit issuance, reissuance, or in response to a request for modification of an existing permit.

(6) The department shall include in the public notice issued under s. 283.39, Stats., its tentative determinations made under subs. (1) and (4). Those tentative determinations shall be subject to review under s. 283.49, Stats. Final determinations made under subs. (1) and (4) shall be subject to review under s. 283.63, Stats. Tentative determinations and final determinations made under subs. (1) and (4) are not subject to review under s. 283.15, Stats.

(7) In the absence of a specific determination under sub. (1), all dischargers which are required to disinfect as of the effective date of this rule shall continue to disinfect and comply with all terms of their WPDES permit in effect on that date.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.07 Effluent limitation variance categories. Modifications to limitations specified in s. NR 210.05 (1) to (3) may be approved as follows:

(1) INDUSTRIAL WASTES. For publicly owned treatment facilities receiving effluent from certain categories of industries, the applicable effluent limitations for BOD_5 and SS as set forth in s. NR 210.05 (1) may be modified. The limitations for BOD_5 and SS in s. NR 210.05 (1) may be adjusted upwards provided that:

(a) The discharge of such pollutants attributable to the industrial category will not be greater than that allowed by applicable effluent limitations if such industrial category were to discharge directly into the waters of the state; and

(b) The flow or loading of such pollutants introduced by the industrial category exceeds 10% of the design flow or loading of the publicly owned treatment works. When such an adjustment is made, the limitations for BOD_5 or SS in s. NR 210.05 (1) shall be adjusted proportionally.

(2) AERATED LAGOONS AND STABILIZATION PONDS. A variance for SS may be made in cases where aerated lagoons or waste stabilization ponds are the principal treatment processes. The SS limitation may be raised to a maximum of 60 mg/l for a 30−day average. This variance is not applicable to polishing or holding ponds which are preceded by other biological or physical/chemical treatment processes.

Note: See s. NR 110.24 for design requirements of aerated lagoons and stabilization ponds.

(3) pH. The effluent pH limitations may be adjusted on a case−by−case basis if the permittee or the owner can demonstrate that the limits need to be adjusted based on the following:

(a) Inorganic chemicals are not added as part of the treatment process; and

(b) In the case of a publicly owned treatment works, contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0.

(4) $CBOD_5$. Upon request by the permittee, the parameter $CBOD_5$ may be substituted for the parameter BOD_5, provided the following conditions are met:

(a) For treatment facilities with BOD_5 limitations specified in s. NR 210.05 (1) (a), (2) (a), or (3) (a), the permittee shall provide paired sampling of the effluent for BOD_5 and $CBOD_5$ for the months of January and July. The sample frequency shall be at the same frequency as required by the permit for BOD_5 sampling. Additional sampling for nitrogen compounds (NH_3−N, NO_3–N) or other sampling may also be required on a case−by−case basis.

(b) For treatment facilities with BOD_5 limitations established in accordance with those specified in s. NR 210.05 (1) (e), (2) (g), or (3) (f), the permittee shall provide paired sampling of the effluent for BOD_5, $CBOD_5$, NH_3–N and NO_3–N. At the end of the BOD_5 test, an analysis of that BOD_5 sample for NO_3–N shall also be conducted.

1. This sampling shall be provided for the months of January, February, July, and August at a frequency of 3 times weekly for facilities with a design flow over 0.5 MGD and for those facilities which discharge to trout waters or may impact trout waters.

2. This sampling shall be provided for the months of January and July at a sample frequency as required by the permit for BOD_5 sampling, with a maximum of 3 times weekly for facilities with a design flow less than 0.5 MGD.

(5) TREATMENT EQUIVALENT TO SECONDARY TREATMENT. (a) Facilities eligible for treatment equivalent to secondary treatment as defined in s. NR 210.03 (6) shall provide the following minimum level of effluent quality in terms of the parameters BOD_5, SS, and pH. All requirements for the specified parameters in subd. 1., 2. or 3. shall be achieved except where provided for in sub. (2) or par. (b), (c), or (d).

1. The following effluent limits for BOD_5 apply:

a. The 30−day average may not exceed 45 mg/l.

b. The 7−day average may not exceed 65 mg/l.

c. The 30−day average percent removal may not be less than 65%.

2. The following effluent limits for SS apply: except where SS values have been adjusted in accordance with s. NR 210.07 (2):

a. The 30−day average may not exceed 45 mg/l.

b. The 7−day average may not exceed 65 mg/l.

c. The 30−day average percent removal may not be less than 65%.

3. The requirements of s. NR 210.05 (1) (c) shall be met.

(b) Except as limited by par. (d) and subject to EPA approval, the department may after notice and opportunity for public comment, adjust the minimum levels of effluent quality set forth in par. (a) 1. a., b., 2. a. and b. for trickling filter facilities and in par. (a) 1. a. and b. for waste stabilization pond facilities to conform to the BOD_5 and SS effluent concentrations consistently achievable through proper operation and maintenance by the median (50th percentile) facility in a representative sample of facilities within a state or appropriate contiguous geographical area that meet the definition of facilities eligible for treatment equivalent to secondary treatment.

(c) Where data are available to establish $CBOD_5$ limitations for a treatment works subject to this subsection, the department may substitute the parameter $CBOD_5$ for the parameter BOD_5 in pars. (a) and (b), on a case−by−case basis.

1. The levels of $CBOD_5$ effluent may not be less stringent than the following:

a. The 30−day average may not exceed 40 mg/l.

b. The 7−day average may not exceed 60 mg/l.

c. The 30−day average percent removal may not be less than 65%.

2. To apply for the $CBOD_5$ variance, the permittee shall provide the data outlined in sub. (4).

(d) Any permit adjustment made pursuant to this section may not be any less stringent than the limitation required pursuant to sub. (5) (a). The department shall require more stringent limitations when adjusting permits if:

1. For existing facilities the permitting authority determines that the 30−day average and 7−day average BOD_5 and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, based on an analysis of the past performance of the treatment works, would enable the treatment works to achieve more stringent limitations, or

2. For new facilities, the department determines that the 30−day average and 7−day average BOD_5 and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process and geographical and climatic conditions, would enable the treatment works to achieve more stringent limitations.

(6) COMBINED SEWERS. Treatment works which have a combined sewer system may not be capable of meeting the percentage removal requirements established in sub. (5) (a) 1. c. and 2. c. or in s. NR 210.05 (1) (a) 3. and (b) 3. during wet weather where the treatment works receive flows from combined sewers. For each treatment works, the decision shall be made on a case−by−case basis as to whether any attainable percentage removal level can be defined, and if so, what the level should be.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.08 Emergency operation. (1) All treatment works which are subject to the provisions of this chapter shall be equipped for emergency operation. Emergency power shall be provided in accordance with s. NR 110.15 (5) (d). Sufficient emergency power shall be provided so that:

(a) All sewage treatment facilities shall, at a minimum, be able to maintain primary settling and effluent disinfection under all design conditions.

(b) All sewage treatment facilities discharging to class I, II, or III trout streams, or other critical stream segments as determined by the department, shall be able to operate all units critical to meeting the effluent limits as set forth in the WPDES permit for a minimum emergency period of 24 hours under all design flow conditions.

(2) Lift stations shall be provided with emergency operation in accordance with s. NR 110.14 (12).

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86; **CR 09−123: am. (1) (a) and (b), r. and recr. (2) Register July 2010 No. 655, eff. 8−1−10.**

NR 210.09 Analytical methods and laboratory requirements. Methods used for analysis of influent and effluent samples shall be as set forth in ch. NR 219 unless alternative methods are specified in the WPDES discharge permit.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.10 Requirements for certified or registered laboratory. Bacteriological analyses of groundwater samples, and all radiological analyses, shall be performed by the state laboratory of hygiene or at a laboratory certified or approved by the department of agriculture, trade and consumer protection. Other laboratory test results submitted to the department under this chapter shall be performed by a laboratory certified or registered under ch. NR 149. The following tests are excluded from the requirements of this section:

(1) Temperature,
(2) Turbidity,
(3) Bacteria tests in wastewater effluent,
(4) pH,
(5) Chlorine residual,
(6) Specific conductance,
(7) Physical properties of soils and sludges,
(8) Nutrient tests of soils and sludges,
(9) Flow measurements.

History: Cr. Register, October, 1986, No. 370, eff. 11−1−86.

NR 210.11 Compliance maintenance annual report (CMAR). The CMAR shall be submitted to the department on or before June 30 of each year and shall meet all applicable requirements.

History: Cr. Register, February, 1987, No. 374, eff. 3−1−87; **CR 09−123: am. Register July 2010 No. 655, eff. 8−1−10.**